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# Inpatient prices in Utah: Preliminary analysis of MarketScan and Medicare claims data

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# Background

- ▶ Background: Arnold Foundation project to support and inform state-level efforts to lower private sector prices
- ▶ Analytic component:
  - ▶ Demonstrate the extent of price variation across services, geographies, settings, and consumers (e.g., by plan type)
  - ▶ Compare private sector prices to Medicare prices
  - ▶ Demonstrate extent of practices such as out-of-network billing
- ▶ Today:
  - ▶ MarketScan Utah sample sizes
  - ▶ Average inpatient prices overall and for selected procedures
  - ▶ Comparison to national average
  - ▶ Variation in prices by MSA

# Key Findings

- ▶ For a standard “basket” of inpatient services, the ratio of private prices between the highest and lowest-priced MSAs in UT is 1.09. The differential increases to about 1.40 for some procedures.
- ▶ The private sector price for the inpatient “basket” is 2.54 times the Medicare price.
  - ▶ The ratio of private to Medicare prices ranges from 1.2 to 3.6 across different services.
- ▶ The price of the inpatient basket in UT is about 1.05 times the national average.
- ▶ Average out-of-pocket costs for inpatient stays are 1.35 times the national average.

# Data: MarketScan Commercial Claims

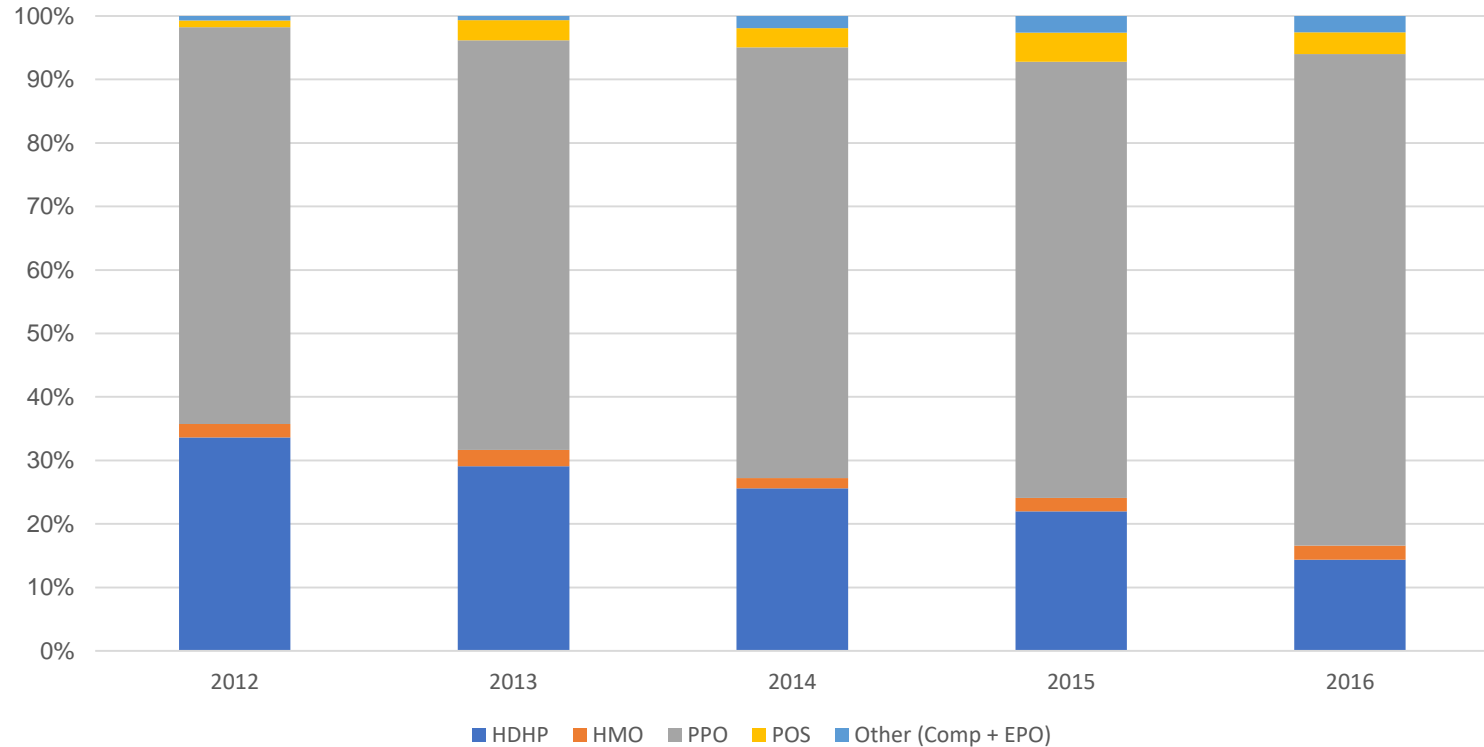
- ▶ Private-sector health data from approximately 350 payers
- ▶ Captures person-specific clinical utilization, expenditures, and enrollment across settings
- ▶ Includes active employees, early retirees, COBRA continuees and dependents insured by employer-sponsored plans
- ▶ Large sample sizes allow for meaningful segmentation
- ▶ High-quality and reliable coding
- ▶ Limitations: convenience sample, mostly from large employers, cannot look at specific providers

# Analysis sample

- ▶ **MarketScan sample:** Individuals age 18-64 **with an inpatient admission** that occurred within the state of UT from 2012-2016
- ▶ **Unit of analysis:** Inpatient admission
- ▶ **Main outcome:** Total spending per admission, Total spending by service (5)
- ▶ **Geography:** State, Metropolitan Statistical Area

Year	Total Mkt Sample	Inpatient Mkt Sample
2012	237,176	14,155
2013	217,935	12,503
2014	233,703	12,330
2015	193,824	10,299
2016	203,595	10,765

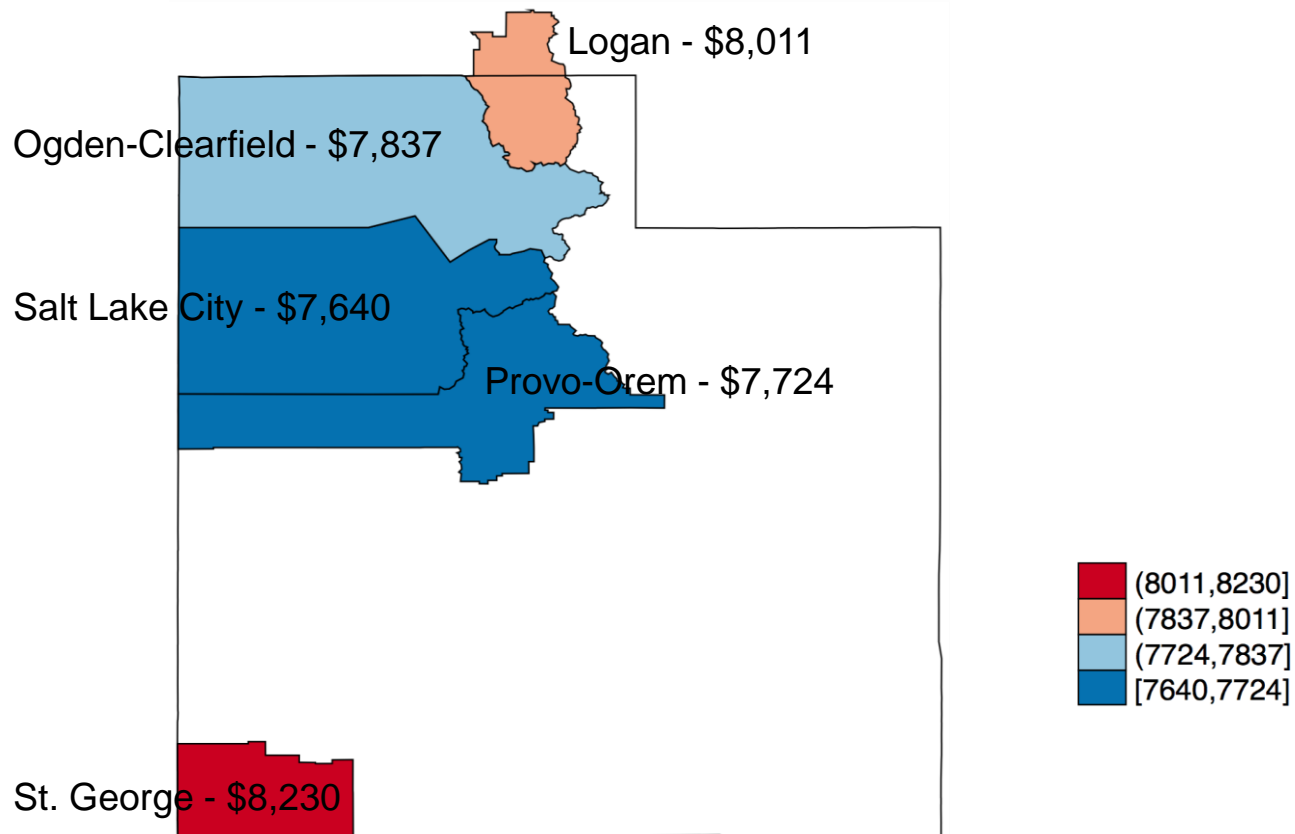
# Sample sizes 1: Distribution of Total Mkt sample across plan types by year



## Private price variation within UT [2016]

	State Mean	Ratio Max vs Min region (across 5 MSAs and rural)	Rural	Example MSAs	
				Provo-Orem	Salt Lake City
Inpatient Stay	19,790	1.24	22,151	18,288	19,858
Inpatient Basket	7,958	1.09	8,307	7,724	7,640
Hip	34,477	1.38	43,488	32,139	31,612
Knee	33,002	1.12	33,373	32,623	32,586
Cesarean Section	14,415	1.39	13,623	15,339	14,057
Vaginal Delivery	9,844	1.19	9,465	9,580	10,188
PTCA	40,986	1.16	42,717	39,753	38,115

# Inpatient Basket by MSA [2016]

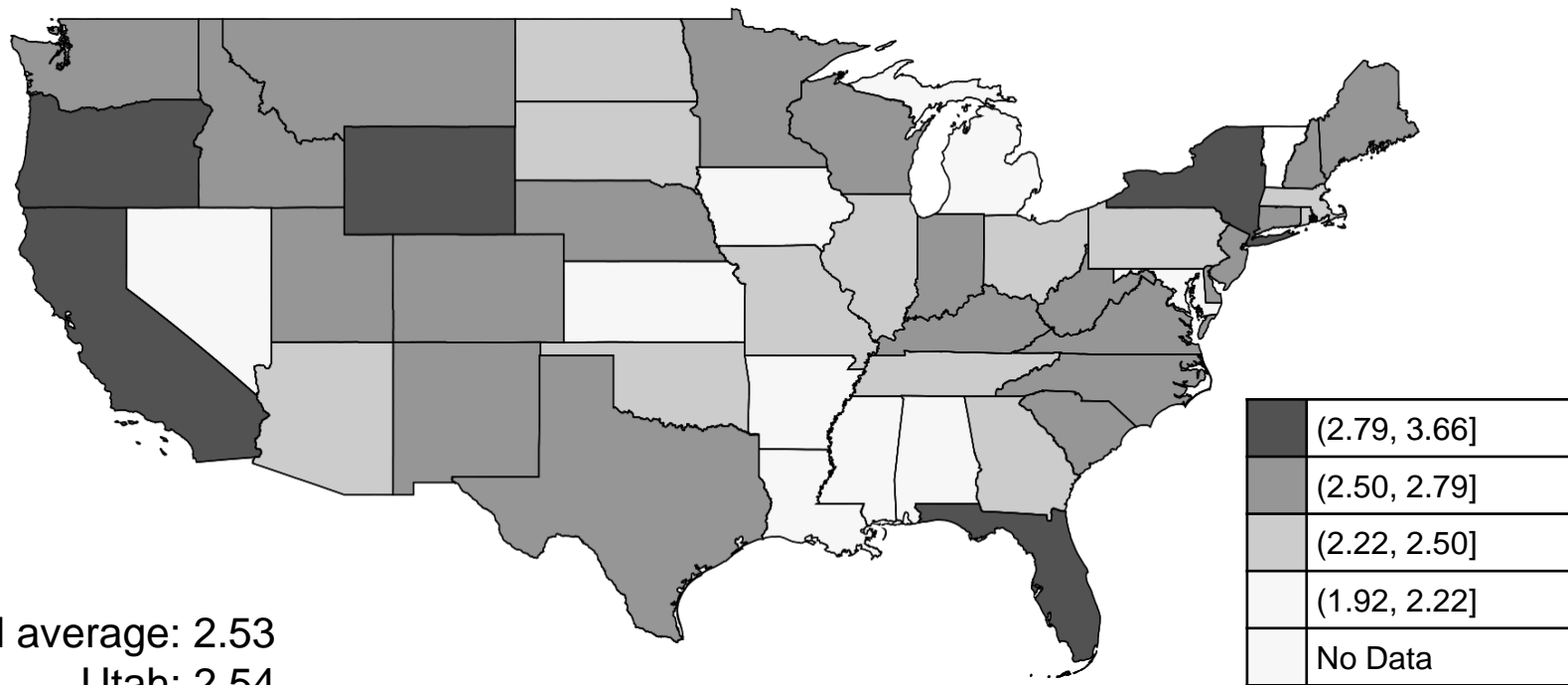




## Private prices vs Medicare prices, UT [2016]

	Private	Medicare	Ratio
Inpatient Basket	7,308	2,877	2.54
Hip	34,477	12,248	2.81
Knee	33,002	12,248	2.69
Cesarean Section	14,415	11,639	1.24
Vaginal Delivery	9,844	5,018	1.96
PTCA	40,986	11,310	3.62

# Private spending:Medicare spending ratio, basket



National average: 2.53  
Utah: 2.54

## Private prices in UT vs National, [2016]

	UT		National		Ratio
	N	Mean \$	N	Mean \$	
Inpatient Basket	6,393	7,958	548,860	7,564	1.05
Hip Replacement	149	34,477	16,711	33,128	1.04
Knee Replacement	455	33,002	29,665	32,112	1.03
Cesarean Section	338	14,415	29,924	14,941	0.96
Vaginal Delivery	1,937	9,844	99,096	11,575	0.85
PTCA	67	40,986	9,788	36,113	1.13

## Private OOP prices in UT vs National [2016]

	UT		National		Ratio
	N	Mean \$ [min, max]	N	Mean \$ [min, max]	
Inpatient Stay	10,525	527 [0,4205]	1,068,585	389 [0,5130]	1.35
Hip Replacement	148	319 [0,2887]	16,711	651 [0,4470]	0.49
Knee Replacement	452	280 [0,3342]	29,665	578 [0,4467]	0.48
Cesarean Section	323	776 [0,4205]	29,924	851 [0,5130]	0.91
Vaginal Delivery	1,874	873 [0,4174]	99,096	856 [0,4500]	1.02
PTCA	65	625 [0,3558]	9,788	772 [0,4606]	0.81

# Next steps

- ▶ Prices by insurance type
- ▶ Risk-adjustment
- ▶ Additional procedures (e.g., outpatient, office-based)
- ▶ Analysis of factors that are contributing to the variation in prices, e.g. hospital competition

# Appendix

## Sample sizes 2: Sample by data provider

	2012	2013	2014	2015	2016
Employer (%)	68.98	73.59	70.10	85.14	84.78
Health Insurer (%)	31.02	26.41	29.90	14.86	15.22

## Sample sizes 3: Enrollment by age and sex

	2012		2013		2014		2015		2016	
<b>Age</b>	<b>Avg</b>	<b>SD</b>	<b>Avg</b>	<b>SD</b>	<b>Avg</b>	<b>SD</b>	<b>Avg</b>	<b>SD</b>	<b>Avg</b>	<b>SD</b>
Years	38.38	13.28	38.25	13.26	38.19	13.28	37.97	13.28	37.95	13.29
<b>Sex</b>	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>
Female	119,546	50.40	109,609	50.29	117,252	50.17	98,699	50.92	103,657	50.91



# Identifying inpatient procedures

Procedure	Age	ICD9	DRG
Hip Replacement	45-64	8151	470
Knee Replacement	45-64	8154	470
Cesarean Section	25-34		766
Vaginal Delivery	25-34		775
PTCA	18-64		247

# Creating the inpatient “basket”

- ▶ The market basket includes the 15 most frequent hospital services (ranked by diagnosis related group or DRG).
- ▶ Removes variation due to volume.
- ▶ These 15 DRGs represent a significant amount of health care – 46% of total admissions and 37% of total spending.
- ▶ The 15 DRGs include: Vaginal delivery w/o complicating condition (CC), Major joint replacement or reattachment of lower extremity w/o major complicating condition (MCC), Cesarean section w/o CC/MCC, Cesarean section w CC/MCC, Psychoses, Alcohol/drug abuse or dependence w/o rehabilitation therapy w/o MCC, Vaginal delivery w complicating diagnoses, Esophagitis, gastroent & misc digest disorders w/o MCC, Septicemia or severe sepsis w/o MV >96 hours w MCC, OR procedures for obesity w/o CC/MCC, Uterine & adnexa proc for non-malignancy w/o CC/MCC, Spinal fusion except cervical w/o MCC, Septicemia or severe sepsis w/o MV >96 hours w/o MCC, Cellulitis w/o MCC, PTCA.

# Creating the inpatient “basket”

<u>15 Most Frequent DRGs</u>	<u>Average DRG Price</u>	<u>X</u>	<u>Proportion Adm</u>	<u>Summation</u>
Vaginal Delivery w/o CC	\$11,082		.1393	15 DRG Market Basket
Major joint replacement or reattachment of lower extremity w/o MCC	\$32,850		.0451	
Cesarean section w/o CC/MCC	\$15,180		.0451	
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PTCA	\$36,871		.0090	

# Plan Type Details

<b>Plan Type</b>	<b>Patient incentive to use certain providers?</b>	<b>PCP assigned?</b>	<b>Referrals from PCP to specialists required?</b>	<b>Out of network services covered?</b>	<b>Partially or fully capitated?</b>
Basic/Major Medical	No	No	n/a	n/a	No
Comprehensive	No	No	n/a	n/a	No
Exclusive Provider Organization	Yes	Yes	Yes	No	No
Health Maintenance Organization	Yes	Yes	Yes	No	Yes
Non-Capitated Point-of-Service	Yes	Yes	Yes	Yes	No
Preferred Provider Organization	Yes	No	n/a	Yes	No
Cap or Partially Cap Point-of-Service	Yes	Yes	Yes	Yes	Yes
Consumer Driven Health Plan	Varies	No	n/a	Varies	No
High Deductible Health Plan	Varies	No	n/a	Varies	No